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ABSTRACT

Attachment styles have been shown to be enduring and influential, and studies of attachment phenomena require scores that are reliable and valid. The present study investigated the psychometric integrity of scores on the Adult Attachment Scale using data from 283 college students. This instrument is an 18-item Likert scale that is an expansion of the measure developed by C. Hazan and P. R. Shaver (1987, 1990). Results strongly supported the reliability and validity of scores from the measure. These results compared extremely favorably with those from previous studies, and certainly were more favorable than those for the Hazan and Shaver measure. (Contains 2 tables and 19 references.) (Author/SLD)

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A Note Regarding the Reliability and Validity of Scores on Collins and Read's Adult Attachment Scale

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Abstract

Attachment styles have been shown to be enduring and influential. Studies of attachment phenomena require scores that are reliable and valid. The present study investigated the psychometric integrity of scores on the Adult Attachment Scale. Results compared extremely favorably with those from previous studies, and certainly were more favorable than those for the Hazan and Shaver measure.

Theories about attachment styles (e.g., Hazan & Shaver, 1987) and their development during infancy and early childhood have attracted considerable interest. In theory, more securely attached persons are not distracted by concerns over unmet attachment needs, presumably because as secure infants such persons had mothers who were consistently sensitive and responsive (Ainsworth, Blehar, Waters, & Wall, 1978). Thus, such people grow up trusting and displaying optimism towards the world (Erikson, 1950).

Sroufe (1983) found that securely attached preschoolers have superior problem-solving capabilities. Furthermore, research suggests that optimists are more likely to engage in active coping and are less likely to disengage from threats and distress (Carver & Scheier, 1990a, 1990b; Carver, Scheier, & Weintraub, 1989; Scheier, Weintraub, & Carver, 1986). In adulthood, avoidant personalities tend to focus on work activity rather than on relationships, as an ego defensive reaction (Hazan & Shaver, 1990).

Hazan and Shaver (1987) translated the three infant attachment styles into terms appropriate for adult relationships: secure, avoidant and anxious. The attachment styles have been applied as constructs in several areas of inquiry, but especially in studies of love--an area of considerable renewed scholarly interest (Thompson & Borrello, 1992).

According to Bowlby (1980), attachment styles are fairly stable across the life-span, and tend to resist dramatic change. Thus, because attachment styles seem to be both influential and stable, studies of attachment styles and their development and

consequences appear to be warranted. Of course, effective inquiry in this area presumes the availability of instruments that yield reliable and valid scores under a variety of circumstances (Thompson, 1994b). Too many researchers conduct substantive analyzes with unreliable scores, and even with scores that have reliability coefficients that are not only negative, but that have coefficients less than even -1 (Thompson, 1994a).

The present study was conducted to investigate the psychometric integrity of scores on the Adult Attachment Scale (Collins & Read, 1990). This instrument is an 18-item Likert-scale measure, six items of which measure each of three attachment styles originally formulated in the infant-attachment typology of Ainsworth, Blehar, Waters and Wall (1978).

The Adult Attachment Scale (Collins & Read, 1990) is an expansion of Hazan and Shaver's (1987) measure. Collins and Read (1990) conducted a factor analysis of their 18-item measure that yielded three factors. However, the three factors did not directly correspond to the three discrete styles of secure, avoidant, and anxious. Instead, Collins and Read (1990) labelled their related dimensions Close, Depend and Anxiety.

The dimension, Close, reflects comfort with closeness and intimacy. Depend reflects trust in others and confidence that others will be available when needed. The dimension, Anxiety, involves concern with being abandoned or unloved. Cronbach alpha coefficients for scores on each dimension in their sample were .75 for Depend, .72 for Anxiety, and .69 for Close, respectively.

Test-retest reliability coefficients for Close, Depend, and Anxiety were .68, .71, and .52, respectively.

Method

Subjects

Students enrolled in courses at a large southwestern university were asked to participate in the study. Data from 283 subjects were used in the present analyses. The sample included 197 women and 86 men, ranging in age from 17 to 38, with a mean age of 20.56 (SD= 2.88) years.

Results

Our first research analysis focused on the reliability of the scores for the data that we collected. We attended to the reliability of our own scores, because reliability is a function of scores, and not of tests, and is actually affected by the persons themselves who take a given test (Thompson, 1994b). Coefficients alpha for the Adult Attachment Scale dimensions of Depend, Anxiety and Close were .854, .784, and .847 in our sample, respectively.

We also conducted item analyses for the measure, as reported in Table 1. All the corrected item-to-total correlation coefficients (Thompson & Levitov, 1985) were sizeable and in the expected direction (i.e., positive), expect the results for item 11, an Anxiety item. The alpha-if-deleted item statistic for the item, prior to our decision to omit this item, indicated that alpha would improve from .713 to .784 if the item was omitted.

INSERT TABLE 1 ABOUT HERE.

Our second research analysis focused on the validity of scores

on the scale. Many researchers have acknowledged the prominent role that factor analysis can play in efforts to establish construct validity. Joy Guilford's article some 50 years ago illustrates the historical pattern of sometimes even speaking of construct validity as factorial validity:

> Validity, in my opinion is of two kinds... The *factorial validity* of a test is given by its loadings in meaningful, common, reference factors. (Guilford, 1946, pp. 428, emphasis added)

Similarly, Gorsuch (1983, p. 350) noted that, "A prime use of factor analysis has been in the development of both the operational constructs for an area and the operational representatives for the theoretical constructs." In short, "factor analysis is intimately involved with questions of validity.... Factor analysis is at the heart of the measurement of psychological constructs" (Nunnally, 1978, pp. 112-113).

Factors here were extracted using the principal components method and the factor structure was rotated to the varimax criterion. Principal components and common factor methods tend to yield equivalent structures when (a) the reliability of scores on the factored entities (here, items) is high or (b) the number of factored entities is relatively large (Thompson & Daniel, in press).

Table 2 presents the factor pattern/structure coefficients for the Adult Attachment Scale. The first Adult Attachment Scale factor explained the greatest percentage of the covariance in

responses (35.2%), prior to rotation (Thompson & Daniel, in press). The second and the third Adult Attachment Scale factors accounted for 13.2%, and 8.1% of the total covariance of the 18 items, again prior to rotation.

INSERT TABLE 2 ABOUT HERE.

The first factor corresponded to the first factor in the original study, whereas the second and the third factor alternated their order in comparison with the original study. Differences in factor order are generally not considered noteworthy, as long as the same constructs emerge. There were also minor differences in numbers of clustered items and their pattern/structure coefficients.

Discussion

We directly compared the three varimax-rotated principal components that we extracted with those reported by Collins and Read (1990), as reported in Table 2. The two sets of results were remarkably similar.

The alpha coefficients we obtained were larger than those reported by Collins and Read (1990). Cronbach alpha coefficients for scores on each dimension in their sample were .75 for Depend, .72 for Anxiety, and .69 for Close, respectively. Coefficients alpha for the Adult Attachment Scale dimensions of Depend, Anxiety and Close were .854, .784, and .847 in our sample, respectively.

In the aggregate, our results strongly supported the reliability and the validity of scores derived from the Adult Attachment Scale. Scores on this measure are considerably superior

to those obtained on the more commonly used measure offered by Hazan and Shaver (1987).

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Table 1
Reliability Analysis for the Adult Attachment Scale

Scale/ Item	Item-Total Statistics: Corrected Item-Total Correlation	Item-Total Statistics: α-If-Item-Deleted
Depend (α=.854)		
1	.645	.830
2	.625	.834
3	.630	.832
4	.634	.833
5	.634	.832
6	.696	.819
Anxiety (α=.784)		
7	.421	.790
8	.573	.739
9	.609	.729
10	.650	.712
12	.561	.743
Close (α=.847)		
13	.649	.818
14	.684	.811
15	.786	.792
16	.801	.785
17	.352	.865
18	.534	.847

Note. Item 11 was omitted from the subscale due to poor discrimination (r = .147) and α-if-deleted (.784; scale α prior to item deletion = .713) coefficients.

Table 2
Varimax Rotated Pattern/Structure Coefficients
for the Adult Attachment Scale Measure

	Factor			Factor		
Item	I	II	III	I	II	III
1	.708	.244	.045	.54	-.18	.06
2	.722	.126	.206	.48	.26	.09
3	-.693	-.286	-.047	-.58	.24	-.09
4	-.730	-.172	-.180	-.66	-.18	.03
5	.649	.328	.140	.38	.13	.12
6	.784	.118	.197	.71	.14	-.10
7	-.149	-.212	-.507	.03	-.48	-.19
8	.234	.263	.616	.09	.64	.21
9	.137	-.020	.792	.10	.47	-.13
10	.262	.112	.713	.10	.62	.15
11	-.206	-.388	.412	.11	.49	-.14
12	-.008	.001	.827	.05	.55	-.14
13	-.379	-.655	-.066	-.16	.02	-.45
14	-.142	-.787	-.126	.07	.01	-.46
15	.363	.776	.154	.05	.04	.71
16	.282	.814	.192	-.02	.20	.77
17	-.329	-.364	.055	-.03	.08	-.40
18	.067	.719	.071	.07	-.03	.29

Note. Results from the present study are reported to three decimal places. Results from the Collins and Read (1990) study are reported to two decimal places. Coefficients for variables deemed salient ($r_s > |.4|$) are underlined.

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